Work capacity evaluation among nursing aides

AVALIAÇÃO DA CAPACIDADE PARA O TRABALHO ENTRE AUXILIARES DE ENFERMAGEM

EVALUACIÓN DE LA CAPACIDAD PARA EL TRABAJO ENTRE AUXILIARES DE ENFERMERÍA

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ABSTRACT

Work force aging generates the need to develop studied with the purpose to evaluate work capacity. The objective of this study was to analyze the work capacity of the nursing aides of a public health institute. A cross-sectional study was developed on the work capacity of these professionals regarding their demographic, work and lifestyle characteristics (n=241). A univariate logistic regression analysis was performed with inadequate work capacity (score below 37) as the dependent variable. There was an association with age (the eldest), work time at the institution (the oldest), body mass index (obesity) and item 1 of the work capacities index: present work capacity. This information can be used to create preventive measures and restore work capacity.

DESCRIPTORS
Nurses' aides
Work capacity evaluation
Cross-sectional studies
Occupational health

RESUMO

O envelhecimento da força de trabalho gera a necessidade de se desenvolver estudos a fim de avaliar a capacidade para o trabalho. O objetivo deste estudo foi analisar a capacidade para o trabalho de auxiliares de enfermagem de uma instituição pública de saúde. Foi desenvolvido um estudo transversal sobre capacidade para o trabalho desses profissionais em relação às características demográficas, de trabalho e estilo de vida (n=241). Uma análise de regressão logística univariada foi desenvolvida tendo a capacidade para o trabalho inadequada (menor que 37 pontos) como variável dependente. Foi encontrada associação em relação à idade (os mais velhos), ao tempo de trabalho na instituição (o mais antigo), o índice de massa corpórea (obesidade) e o item 1 do índice de capacidade para o trabalho: capacidade de trabalho atual. Essas informações podem ser utilizadas para medidas preventivas e para restaurar a capacidade para o trabalho.

DESCRITORES
Auxiliares de enfermagem
Avaliação da capacidade de trabalho
Estudos transversais
Saúde do trabalhador

RESUMEN

El envejecimiento de la fuerza laborar genera la necesidad de desarrollar estudios que evalúen la capacidad para el trabajo. Este estudio objetivó analizar la capacidad para el trabajo de auxiliares de enfermería de una institución pública de salud. Se desarrolló estudio transversal sobre capacidad para el trabajo de auxiliares de enfermería en relación a características demográficas, laborales y estilo de vida (n=241). Fue efectuado un análisis de regresión logística univariada, teniendo la capacidad inadecuada para el trabajo (<37 puntos) como variable dependiente. Se encontró asociación relacionada a la edad (los mayores), al tiempo de trabajo en la institución (el más prolongado), al índice de masa corporal (obesidad); y el ítem del índice de capacidad para el trabajo, capacidad de trabajo actual. Estas informaciones pueden utilizarse para generar medidas preventivas y para restaurar capacidades laborales.

DESCRIPTORES
Auxiliares de enfermería
Evaluación de capacidad de trabajo
Estudios transversales
Salud laboral

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INTRODUCTION

The work conditions and risk factors for nursing workers' health have been studied in Brazil and abroad[1-5]. Special attention needs to be given to an aging work force. The nursing work force is aging, with significant social and cultural implications that also affect the workplace[6]. It is important to assess risks specific to the aging population, including diseases, physiological changes and psychosocial factors.

In the context of population aging, research has been developed to assess workers' work ability during the work life. The objective is to identify the factors that affect work ability and, based on this information, to plan and develop work ability promotion and preservation measures[7-8].

The European Union developed a large study between 2002 and 2005, involving ten countries and a population of 38,000 nursing workers. It is called NEXT - Nurse's Early Exit Study[9]. In this study, the work ability was evaluated through the Work Ability Index (WAI), a methodology developed by Finnish researchers[10].

In Brazil, studies concerning the evaluation of work ability have been developed among workers in several occupations[11].

In the present study, an evaluation of nursing aides' work ability at a Brazilian public healthcare institution was developed.

OBJECTIVE

To evaluate the work ability of nurses' aides at a public health institution in relation to demographics, work and lifestyle characteristics.

METHOD

A cross-sectional study was developed. The data collection instrument included demographics, work and lifestyle variables. The work ability evaluation was done through the *Work Ability Index*[7,10], developed by Finnish researchers and based on workers' self-perception. It is composed of seven items: current work ability compared with the lifetime best, work ability in relation to job demands, number of current diseases diagnosed by a physician, estimated work impairment due to diseases, sick leave during the past year (12 months), own prognosis of work ability two years from now and mental resources.

> In the context of population aging, research has been developed to assess workers' work ability during the work life. The objective is to identify the factors that affect work ability and, based on this information, to plan and develop work ability promotion and preservation measures.

The final score varies from 7 to 49 points, distributed across the following categories: poor (7-27), moderate (28-36), good (37-43) and excellent work ability (44-49). In this study, data analysis was done using two categories: inadequate work ability (WAI<37) and adequate work ability (WAI ≥ 37).

National and international recommendations concerning the ethical aspects of research with human beings were followed and approval for the research project was obtained from the Institutional Review Board at the Federal University of São Carlos, protocol number 42, 2001.

A large study covering all workers from a public healthcare institution (n=651, response rate of 89.4%) was developed. This paper presents the results concerning the most prevalent occupation, nurse's aides (n=241). These workers had mixed work demands, that is, physical and mental work demands.

Univariate and multiple (WAI<37) logistic regression analyses were carried out with inadequate work ability as the dependent variable. The independent variables included in the analysis models and their characterization were identified during the descriptive analysis.

RESULTS

In total, 651 subjects participated in the study, with a mean age of 39.9 years. As expected, 83% of the subjects were women. With regard to work ability, 34 subjects had inadequate work ability (14.1%).

There was no association between inadequate work ability and gender.

Table 1 shows the work ability of the nurse's aides related to demographics, work and lifestyle variables.

With regard to the age group, the groups from 45 to 54 years old and from 35 to 44 years were critical, because they showed a proportion of 44.1% and 35.3% of individuals with inadequate work ability.

Concerning marital status, 15.2% of the married subjects had inadequate work ability, similar to the proportion of subjects who lived alone (12.2%).

The data indicated that 47.1% of the subjects with inadequate work ability had worked for more than 20 years.

Subjects who had another job corresponded to 73 (30.3%) study participants, 20.6% of whom showed inadequate work ability.

Table 1 - Work ability of nurse´s aides and demographics, work and lifestyle characteristics

| Variable | Category | Work ability | | | | P Value |
| | | Inadequate | | Adequate | | |
		N	%	N	%	
Gender	Female	28	82.3	172	83.1	0.9154
	Male	6	17.7	35	16.9	
	Total	34	100.0	207	100.0	
Age group	20-34	3	8.8	68	32.8	0.0116
	35-44	12	35.3	73	35.3	
	45-54	15	44.1	56	27.1	
	55-69	4	11.8	10	4.8	
	Total	34	100.0	207	100.0	
Education	4 years	0	0	5	2.4	0.5378[1]
	8 years	10	29.4	39	18.8	
	11 years	23	67.7	151	73.0	
	Higher	1	2.9	12	5.8	
	Total	34	100.0	207	100.0	
Time of work at institution[2]	Until 1	1	2.9	58	28.0	0.0001
	1 to 10	14	41.2	94	45.4	
	11 to 20	3	8.8	21	10.2	
	21 to 50	16	47.1	34	16.4	
	Total	34	100.0	207	100.0	
Having another job	No	27	79.4	141	68.1	0.1840
	Yes	7	20.6	66	31.9	
	Total	34	100.0	207	100.0	
Smoking habits	No	17	50.0	123	59.4	0.3022
	Yes	17	50.0	84	40.6	
	Total	34	100.0	207	100.0	
Body Mass Index[3]	Normal	18	54.6	118	57.6	0.0063
	Overweight	7	21.2	72	35.1	
	Obesity	8	24.2	15	7.3	
	Total	33	100.0	205	100.0	
Doing housework	No	2	5.9	21	10.1	0.7514[1]
	Yes	32	94.1	186	89.9	
	Total	34	100.0	207	100.0	
Practicing physical exercise	No	18	52.9	92	44.4	0.3566
	Yes	16	47.1	115	55.6	
	Total	34	100.0	207	100.0	

[1] Fisher; [2] in years; [3] There were 3 lost data. Body mass index: normal ≤24.8, overweight>24.8 to ≤29.3 and obesity>29.3.

The presence of smoking habits did not show any association with having inadequate work ability.

With regard to the Body Mass Index (BMI), 24.2% of the subjects with obesity had inadequate work ability.

The accomplishment of housework in this study showed no association with having inadequate work ability. The same occurred in relation to the practice of physical exercise. The most frequent types of physical activity were walking, gymnastics and playing soccer and volleyball.

Among the subjects who did not practice leisure activities, 67.0% had inadequate work ability.

The analysis of the presence of inadequate work ability in relation to the work ability index items (Table 2) showed an association between work ability and the demands of the job, estimated work impairment due to diseases, sick leave during the past year (12 months), own prognosis of work ability two years from now and mental resources, which includes enjoying regular daily activities, being active and alert and being full of hope for the future. All associations with inadequate work ability occurred among subjects who scored in the worst categories for each item.

The age varied from 20 to 68 years. The mean age was 45.8 years among individuals with inadequate work ability and 39.1 among subjects with adequate work ability (p<0.0001). At the age of 50 years, the mean work ability was 38.6.

In the univariate logistic regression analysis (Table 3), an association was identified between inadequate work ability and the following characteristics: age (older), age

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group (≥45 years), time of work at the institution (longer), Body Mass Index (obesity) and current work ability (poor).

In the multiple logistic regression analysis, an association was found between the presence of inadequate work ability and longer time of work at institution (OR 1.065, Confidence interval 1.027;1.104, p value 0.0007) and the Body Mass Index – obesity (OR 3.032, Confidence interval 1.043;8.817, p value 0.0417).

The most prevalent diseases with referred diagnosis by a physician were: 19.5% of musculoskeletal diseases (sciatica), 18.7% of injury due to accident (back), 10.4% of digestive diseases (gastritis or duodenal irritation), 9.5% of cardiovascular disease (hypertension) and 7.9% of slight mental disorder or problem (including slight depression, tension, anxiety and insomnia).

Table 2 - Work ability of nurse´s aides and the work ability index items

Variable	Category	Work ability				P Value
		Inadequate		Adequate		
		N	%	N	%	
Work ability in relation to physical demands	Rather poor/very poor	6	17.6	2	1.0	0.0001
	Moderate	16	47.1	23	11.1	
	Rather good	12	35.3	118	57.0	
	Very good	0	-	64	31.0	
	Total	34	100.0	207	100.0	
Work ability in relation to mental demands	Rather poor/very poor	3	8.8	0	-	0.0001[1]
	Moderate	10	29.4	9	4.4	
	Rather good	20	58.8	151	72.9	
	Very good	1	3.0	47	22.7	
	Total	34	100.0	207	100.0	
Estimated work impairment due to diseases	Only part-time work	2	5.8	0	-	
	Often slow down work pace	4	11.8	1	0.5	
	Sometimes slow down work pace	17	50.0	25	12.1	
	The job cause some symptomss	7	20.6	27	13.0	
	No hindrance/no diseases	4	11.8	154	74.4	
	Total	34	100.0	207	100.0	
Sick leave during the past year	From 25 to 99 days	7	20.6	6	2.9	0.0001[1]
	From 10 to 24 days	2	5.9	6	2.9	
	Until 9 days	7	20.6	30	14.5	
	None at all	18	52.9	165	79.7	
	Total	34	100.0	207	100.0	
Own prognosis of work ability two years from now	Unlikely	7	20.6	3	1.4	0.0001[1]
	Not certain	13	38.2	8	3.9	
	Relatively certain	14	41.2	196	94.7	
	Total	34	100.0	207	100.0	
Ability to enjoy your regular daily activities	Never/rather seldom	1	2.9	2	1.0	0.0001[1]
	Sometimes	10	29.4	11	5.3	
	Rather often	14	41.2	77	37.2	
	Often	9	26.5	117	56.5	
	Total	34	100.0	207	100.0	
Being active and alert	Never/rather seldom	1	2.9	0	-	
	Sometimes	4	11.8	2	1.0	
	Rather often	16	47.1	74	35.7	
	Always	13	38.2	131	63.3	
	Total	34	100.0	207	100.0	
Being full of hope for the future	Never/rather seldom	5	14.7	2	1.0	0.0001
	Sometimes	8	23.5	19	9.2	
	Rather often	10	29.4	70	33.8	
	Continuosly	11	32.4	116	56.0	
	Total	34	100.0	207	100.0	

[1] Fisher

Table 3 - Univariate logistic regression analysis of work ability and demographics, work and lifestyle characteristics and work ability index items

Variable	p value	OR	CI 95%
Age	0.0003	1.081	1037; 1.129
Age group ≥ 45 years old	0.0081	2.706	1.294; 5.657
Time of work at institution	0.0001	1.070	1.034;1.107
Obesity (BIM)	0.0133	3.496	1.098; 9.420
Current work ability	<0.0001	0.406	0.285; 0577

DISCUSSION

The aim of this study was to identify demographics, lifestyle and work characteristic variables associated with work ability among nurses' aides at a public healthcare institution. Nursing personnel faces many occupational problems and the nursing work force is rapidly aging. Hence, it is very important to study the interaction between work ability and related factors.

Using univariate logistic regression analysis, the significantly associated factors were age, body mass index (obesity), longer duration of the work at institution and current work ability compared with the lifetime best.

A study[12] about low back disorders in welders and nurses identified a relationship between smoking, no exercise, overweight and low back disorders.

A cross-sectional study with registered nurses from 10 European countries[9] showed that scores on the Work Ability Index were significantly lower in older nurses (≥ 45 years old).

In a prospective study of Italian nurses[13], a relation was identified between age, low work ability and thoughts of quitting the job or actually leaving. Low work ability was a predictor of thinking of quitting the job among nurses younger than 45 years and a predictor of actual leaving among nurses older than 45 years old.

A survey that investigated work ability and its relationship with quality of life reported that the WAI score of Taiwanese nurses increased with age up to 45 and decreased significantly thereafter[14].

A researcher[15] analyzed the relationship between age and Work Ability Index items among 19 to 62-year-old female home care workers in Finland. Perceived work ability decreased at an early age. The first sig nificant turning point was observed after 40 years of age and the second steeper decrease occurred after the age of 55.

The present study also showed a decline in work ability due to aging among Brazilian nurse's aides. The mean age of the subjects with inadequate work ability was around 45 years old. At the age of 50 years old, the mean work ability in this study was 38.6 points. The Finnish reference values[10] at this age for nursing workers were 35 points for women and 37 points for men. Hence, mean work ability index scores at this age were similar in Brazil and Finland.

In a study contrasting low and high turnover hospitals in relation to structural and management characteristics[16], it was identified that the work ability index was rated as *good* in both, but that it was higher in low turnover hospitals, called *magnet hospitals*.

Researchers[17] studied the effects of a worksite physical intervention regarding physical fitness, perceived health status and work ability of female service workers during periods of 1 and 5 years. They compared an intervention and a control group and identified that the work ability index declined around three times faster in the latter than in the intervention group during the 5-year period.

A study[18] assessed the impact of an ergonomics intervention on low-back pain rates among nurses in England. They compared female nurses from two hospitals during periods of 18 and 28 months. One of the hospitals had an ergonomics intervention to minimize unassisted patient handling and high-risk nursing tasks. They identified that the change in risk factors was insufficient to produce a substantial reduction in back pain.

CONCLUSION

The evaluation of work ability permitted identifying the factors associated with inadequate work ability and workers with reduced work ability. This information may be used to adopt preventive measures and restore work ability.

It is important to develop and put in practice strategies to minimize these risks and promote health and safety. The challenge is to learn how to manage workplace issues associated with an aging workforce.

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